Name: ______________________________

GCSE (1 – 9)

Forming and Solving Equations

Instructions

- Use **black** ink or ball-point pen.
- Answer all questions.
- Answer the questions in the spaces provided
– *there may be more space than you need.*
- Diagrams are **NOT** accurately drawn, unless otherwise indicated.
- You must **show all your working out.**

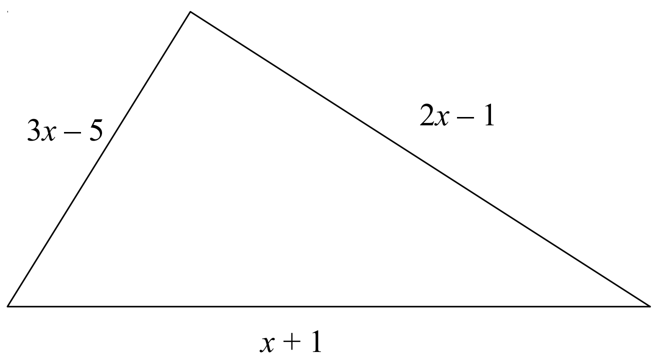
Information

- The marks for each question are shown in brackets
– *use this as a guide as to how much time to spend on each question.*

Advice

- Read each question carefully before you start to answer it.
- Keep an eye on the time.
- Try to answer every question.
- Check your answers if you have time at the end

1 The lengths, in cm, of the sides of a triangle are $3x - 5$, $2x - 1$ and $x + 1$



(a) Write down an expression, in terms of x, for the perimeter of the triangle.

.... cm

(2)

The perimeter of the triangle is 31 cm.

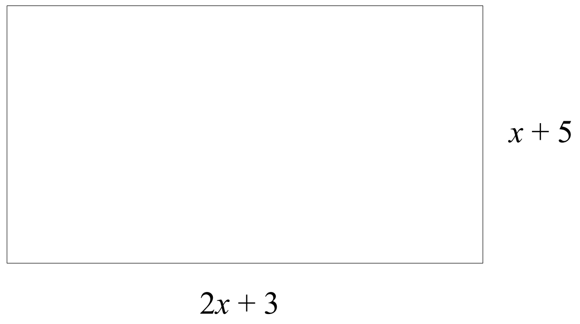
(b) Work out the value of x.

....

(2)

(Total for question 1 is 4 marks)

2 A rectangle has a length of $(2x + 3)$ cm and a width of $(x + 5)$ cm.



(a) Find an expression for the perimeter of the rectangle.

.... cm

(2)

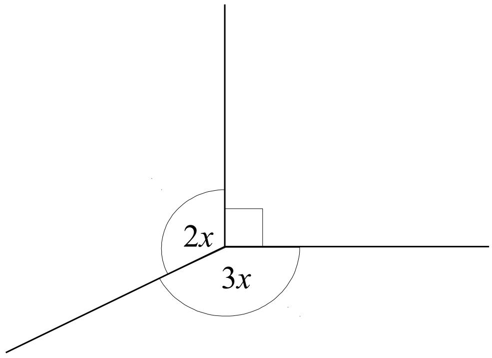
(b) Given the rectangle has a perimeter of 43 cm find the value of x.

....

(2)

(Total for question 2 is 4 marks)

3

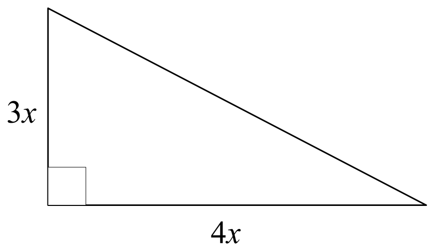


Find the value of x.

....

(Total for question 3 is 3 marks)

4 The diagram shows a right angled triangle.



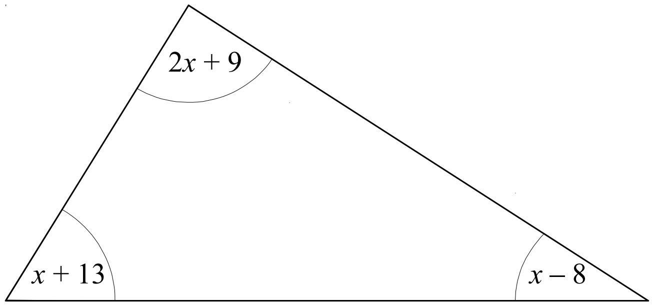
The area of the triangle is 294 cm^2

Work out the value of x.

....

(Total for question 4 is 3 marks)

5 The sizes of the angles, in degrees, of a triangle are $2x + 9$, $x + 13$ and $x - 8$



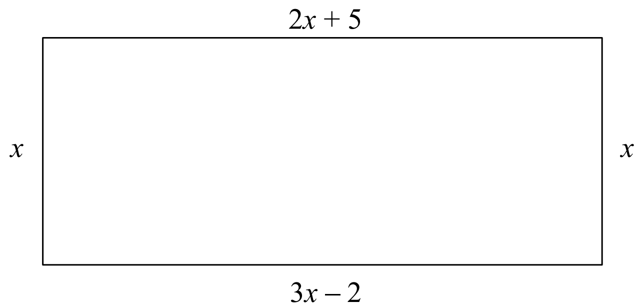
Work out the value of x.

....

(Total for question 5 is 3 marks)

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6 The diagram shows a rectangle.
All measurements are in centimetres.

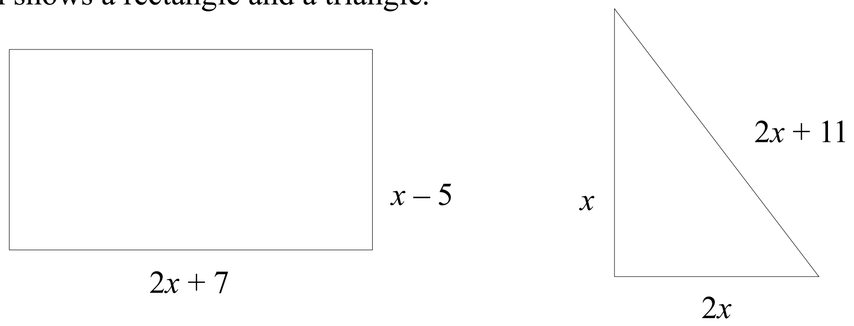


Find the perimeter of the rectangle.

.... cm

(Total for question 6 is 3 marks)

7 The diagram shows a rectangle and a triangle.

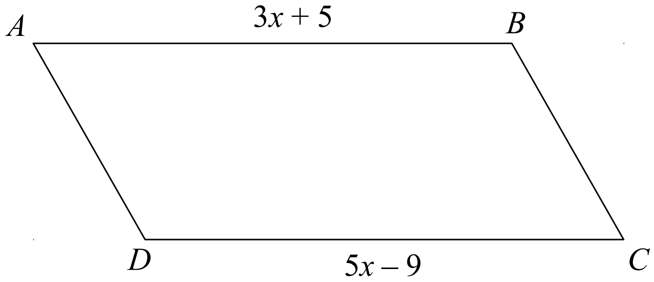


The perimeter of the rectangle is equal to the perimeter of the triangle.
Find the value of x.

....

(Total for question 7 is 3 marks)

8



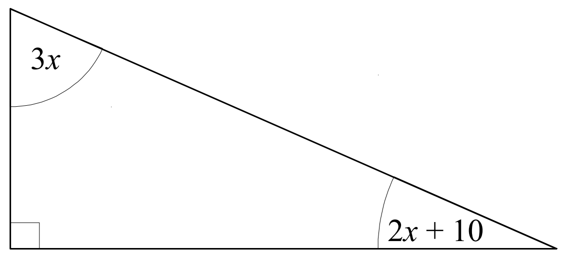
ABCD is a parallelogram
All measurements are in centimetres.
The perpendicular height of the parallelogram is 5 cm.

Find the area of *ABCD*

....

(Total for question 8 is 4 marks)

9 The diagram shows a right-angled triangle.
All of the angles are in degrees.



Find the value of size of the smallest angle in the triangle.

°

....

(Total for question 9 is 3 marks)

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10 Adam has some marbles.
Bradley has twice as many marbles are Adam.
Chris has 5 more marbles than Bradley.

In total they have 55 marbles.

How many marbles does Chris have?

....

(Total for question 10 is 3 marks)

11 The size of the largest angle in a triangle is three times the size of the smallest angle.
The other angle is 35° more than the smallest angle.

Work out, in degrees, the size of each angle in the triangle.
You must show your working.

.......................° , ...° , ...°

(Total for question 11 is 5 marks)

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12 Lucy is three times as old as Alex.
Lucy is 7 years older than Megan.
The sum of their ages is 126.

Find the ratio of Alex's age to Lucy's age to Megan's age.

....

(Total for question 12 is 4 marks)